This Abstract book is based on a compilation of all abstracts selected for oral and poster presentations, as of 15 May 2015.

Due to the inability of some authors to attend, some of those works will therefore not be presented during the conference.
Welcome to the Conference

Welcome to Paris, welcome to ‘Our Common Future under Climate Change’!

On behalf of the High Level Board, the Organizing Committee and the Scientific Committee, it is our pleasure to welcome you to Paris to the largest forum for the scientific community to come together ahead of COP21, hosted by France in December 2015 (“Paris Climat 2015”).

Building on the results of the IPCC 5th Assessment Report (AR5), this four-day conference will address key issues concerning climate change in the broader context of global change. It will offer an opportunity to discuss solutions for both mitigation and adaptation issues. The Conference also aims to contribute to a science–society dialogue, notably thanks to specific sessions with stakeholders during the event and through nearly 80 accredited side events taking place all around the world from June 1st to July 15th.

When putting together this event over the past months, we were greatly encouraged by the huge interest from the global scientific community, with more than 400 parallel sessions and 2200 abstracts submitted, eventually leading to the organization of 140 parallel sessions.

Strong support was also received from many public French, European and international institutions and organizations, allowing us to invite many keynote speakers and fund the participation of more than 120 young researchers from developing countries. Let us warmly thank all those who made this possible.

The International Scientific Committee deserves warm thanks for designing plenary and large parallel sessions as well as supervising the call for contributions and the call for sessions, as well as the merging process of more than 400 parallel sessions into 140 parallel sessions. The Organizing Committee did its best to ensure that the overall organization for the conference was relevant to the objectives and scope. The High Level Board raised the funds, engaged the scientific community to contribute and accredited side events. The Conference Secretariat worked hard to make this event happening. The Communication Advisory Board was instrumental in launching and framing our communication activities on different media. We are very grateful to all.

We very much hope that you will enjoy your stay in Paris and benefit from exciting scientific interactions, contributing to the future scientific agenda. We also hope that the conference will facilitate, encourage and develop connections between scientists and stakeholders, allowing to draw new avenues in the research agenda engaging the scientific community to elaborate, assess and monitor solutions to tackle climate change together with other major global challenges, including sustainable development goals.

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Semi-arid regions, such as the African Sahel, are typically located in the boundary between extremely dry (e.g. arid) and much wetter (e.g. humid subtropical) climate zones. The semi-arid regions of Africa and South Asia are subject to the year-to-year rainfall variability that people living in these regions are particularly exposed to the impacts of climate variability and climate change; the success of the seasonal rains can be critical to people’s survival and their livelihoods. As the Earth warms, trends towards harsher or more productive climatic conditions will therefore have significant consequences for how people in semi-arid regions live with the environment and sustain their livelihoods.

The Adaptation at Scale in Semi-Arid Regions (ASSAR) project is one of four projects being funded through the Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA). We will present the latest evidence and understanding of climate-related variability and trends, in the semi-arid regions of Africa and South Asia, gathered by scientists working in the Climate and Biophysical Impact (CBI) team of ASSAR. In general, the weight of evidence suggests that climate change is having largely adverse effects on natural systems supporting people’s livelihoods in these regions. For Africa and South Asia, Temperatures in these regions are rising at above global average rates and in some locations this is leading to measurable impacts on human and natural systems. However, significant year-to-year and longer-term variability in rainfall patterns means that any attribution of rainfall trends to global climate change is complicated. Also, future projections will show large disagreements in the direction of rainfall changes and climate models are subject to large uncertainties that complicate any interpretation of climate messages. Ultimately the impacts of climate change on human and biophysical systems will manifest themselves through the combined effect of changes in temperature, rainfall, humidity and other climate-related variables. Moreover, it is only by understanding specific system sensitivities and adaptive capacities that useful information can be derived to support adaptation research and practice. Examples of how climate variability and change is impacting socio-ecological systems in semi-arid regions of Africa and south Asia will be provided.

The CBI team is made up of climate scientists, crop modellers, hydrologists, ecologists and social scientists. In the first year of the project the team developed a series of “Regional Climate Messages” documents that were produced for the four regions under investigation, namely Southern Africa, East Africa, West Africa and India. The documents summarise information on historical and future climate aimed at informing policymakers, practitioners and researchers working in these regions – key results will be shared. In addition, the team is continuing to work alongside colleagues in the ASSAR project to provide tailored information that can directly feed into the adaptation-focused project. Ultimately the wider ASSAR project research aims to both generate transferable knowledge related to issues of adaptation across multiple scales of governance and to develop transformative scenarios that influence adaptation and development planning in the focus regions.

Crop supplement irrigation experiences in Burkina Faso

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This study assesses the impact of supplemental irrigation from small man–made basins on cereal production in the semi-arid environment. The profitability to practice supplemental irrigation depends on the types of basins.

Analysis of Desertification Process and Impact of Climate Change by using Satellite data in the Algerian Steppe

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The Agricultural Model Intercomparison and Improvement Project (AgMIP) is a major international effort linking the climate, crop, and economic modeling communities with cutting-edge information technology to produce improved crop and economic models and the next generation of climate impact projections for the agricultural sector.